

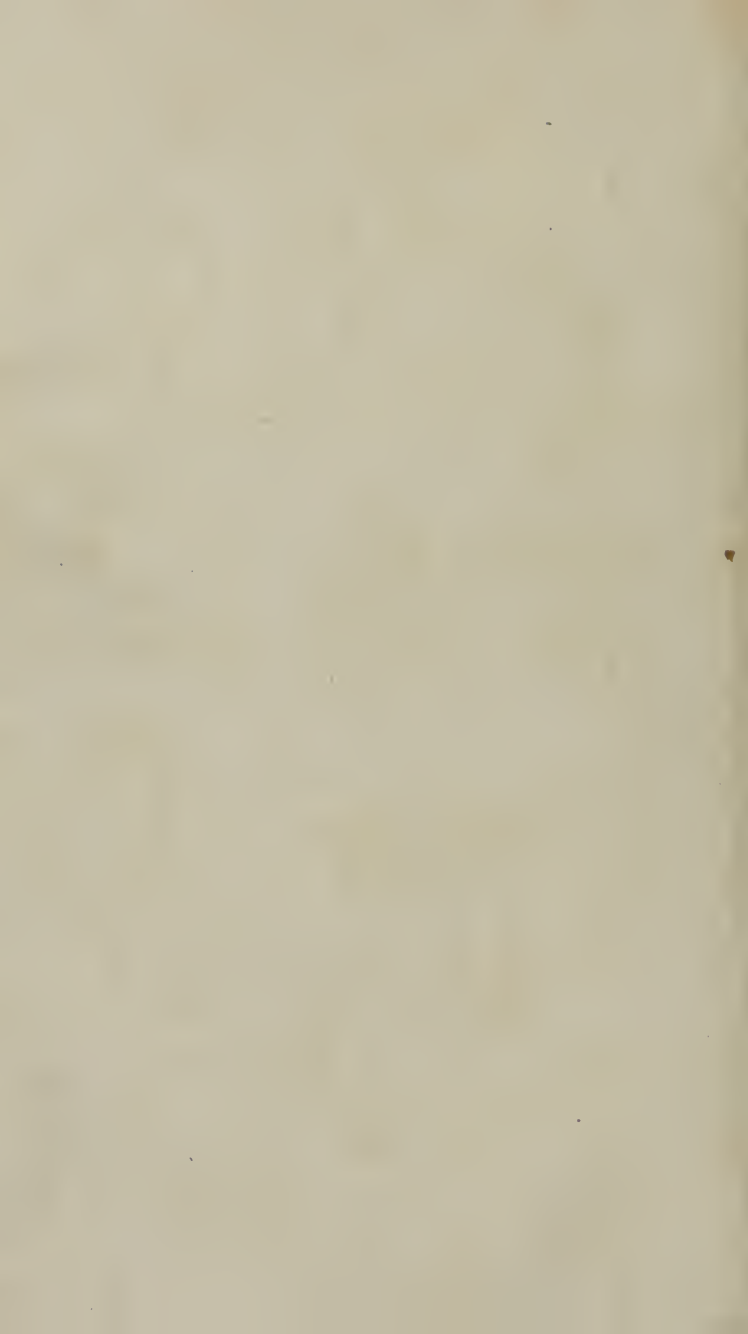


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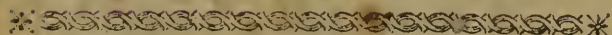
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A *Maryland*

TREATISE

ON THE

Autumnal Endemial Epidemick

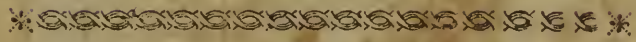
OF

TROPICAL CLIMATES,

VULGARLY CALLED THE

YELLOW FEVER,

&c.





A
TREATISE
ON THE
Autumnal Endemial Epidemick
OF
TROPICAL CLIMATES,
VULGARLY CALLED THE
YELLOW FEVER;
CONTAINING ITS
ORIGIN, HISTORY, NATURE AND CURE;
TOGETHER WITH
A Few REFLECTIONS on the
PROXIMATE CAUSE OF DISEASES.

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BY
✓
JOHN B. DAVIDGE,
A. M. M. D.



ALTERAM PARTEM AUDI.

BALTIMORE :

Printed by W. PECHIN, No. 15; Baltimore-street.

1798.





Introduction.



IT is not my intention in the following pages, to unfurl the banners of personal opposition. Dr. Rush professes truth to be the object of his inquiries—truth is the end of my researches. The expanded mind of Dr. Rush, receives more sincere and real pleasure in the perception of one truth, than in all the fulsome incense that could ascend from a thousand flatteries: His great mind, I hope, is closed to the poisonous nutriment of boyish vanity.

The object of my labours and studies, for several years past, has been, in a great measure, an inquiry into the nature and etiology of diseases. And although, not unfrequently, I could meet with the opinion, that contagious diseases did often originate in marsh exhalations, but as this opinion was accompanied by feebleness, and want of conviction, I treated it more as the fondness for novelty and innovation, than as the candid result of experience. Nor should I at present attempt to arrest its growth, had it not found too able an abettor in the learned and elegant Rush. Writers of little note cannot give tone to opinions. Falcons do not feed on flies. Great names alone can introduce great errors.

Who among us would have imagined, that the human mind was nothing but a flux of ideas, had

not David Hume given currency to this fancy? Or that thought was a peculiar configuration of the combination of material atoms, had not Dr. Priestly introduced it to our acquaintance? But, to come nearer home, who could suppose that the water spout, that huge rising of the ocean, was effected by a power of suction resident in the clouds, without the hint of Dr. Franklin.*

There has been of late, a great objection, to nosologies, started. I see no injury that they can operate: They unquestionably facilitate the acquisition of every science, as well that of Nature, as of Botany and Medicine. Nosology is a mirror reflecting, in pathognomonicks, the melancholy catalogue of cruel diseases; and a student will learn more from a well arranged synoptical nosology, in one year, than he will otherwise in five. The labour of wading through bulky folios, and turning over musty aphorisms, is much more fatiguing and unproductive, than the attentive study of those so much aspersed *multa in parvo*. A *tyro* will much sooner acquire the diagnosticks, when arranged by the learned and experienced, than when he has to cull them out from a cloud of similars.

It is true that we should prescribe for the nature of symptoms; and it is equally true that in prescribing for a symptom, we should have an eye to the nature of the epidemick that may prevail at

* The true and real cause of the water-spout is; a column of electric fluid descends from the cloud, this electric column rarefies the air to a given distance, the rarefaction of the air causes an unequal pressure on the water: The equal pressure being removed, the water immediately rises in bulk corresponding to the space of the rarefied atmosphere. This column of water ascends in proportion to the levity or thinness of the air, sometimes to an amazing height; and in its ascension acquires a whirl occasioned by the circumambient air rushing to a focus to fill up the partial vacuum and restore to itself its former equilibrium.

the time. The inference is, that, in prescribing for a nausea and puking in concussion and apoplexy, we are not to look at the insulated symptoms, but to inquire into the nature of the diseases; in sickness from concussion no physician will think of the lancet, when he knows it to arise from a sudden derangement of the nervous power; but for the same symptom in apoplexy he immediately lets blood, from a knowledge that it proceeds from compression of the brain.

We must always practice according to the nature of symptoms, which nature is only known from a knowledge of the nature of the disease. For a dark tongue in a typhus we order good wine, for a dark tongue in the yellow fever we order mercurial purges: The symptom is the same, but experience informs us that the same remedies will not answer. Then let physicians be cautious how they prescribe blood-letting for every giddiness—the giddiness in the jail fever is cured by wine, in the yellow fever by active purges and the lancet.

Great names have a species of magick accompanying them. Mr. John Hunter gave shape, for a time in London, to the doctrine of digestion; his opinion, that it is the combined action of friction and fermentation, has been successfully combated by being put in competition with one better founded. Spallanzani, by a series of well managed experiments, has exhausted the subject of all doubt; according to this indefatigable man, it is nothing more complex than a simple chymical process; such as takes place in the union of sugar and water, where the attraction of combination overcomes the affinity of aggregation: That which is proper nourishment is taken up, by the vessels acting as capillary tubes, what remains is thrown off as excrementitious refuse.

Nature has placed limits between diseases, as

well as between vegetables, and animals, nor must we suffer the charms of simplicity to persuade us to intrench on those outlines. The small-pox is generically different from the varicella. By taking away natural boundaries, we shall bring the sciences, in confusion, about our ears, and precipitate ourselves into a chaos of uncertainties. A disrespect to civil distinctions, brings about political demise.

Animal electricity, in its hasty progress, promised us an acquaintance even with animal life and human physiology; and had we all been Italians, we might, before this, have found the philosopher's stone: The next thing would have been, the good luck of Paracelsus, an introduction to an universal panacea.

This comes forth, neither connected with name, nor clothed with title; I leave it to recommend itself. If it prospers, well; if not, it will only, suffering the mishap which overtook one of David Hume's best productions, fall dead-born from the press.

Names frequently are more propitious to books than their contents are. And many works, of sterling value, too often instruct none but their authors.†

† When the above was written I did not intend to have put my name to this production, but for particular reasons I have changed my first intention, as the reader will perceive.

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CHAPTER I.

THE ORIGIN, HISTORY, AND NATURE OF THE YELLOW FEVER.

THE yellow fever, synonymous with *la maladie de siam*, or *la sievre matelotte* of the French, and *vomito prieto* of the Spaniards, is the majority or *acmé*, as the intermittent is the embryo, of the remittent bilious fever; It is to the common bilious, what the confluent is to the common mild small-pox; they are in kind the same, a specific difference only exists between them. It is conceived in the same matrix, and quickened by the same sun.* It is indigenous to America and all other warm climates. It is the great outlet, to Americans and Britons, from life to the grave.

The rays of the sun diffused and scattered are salutary and innocent, but collected and condensed into a focus are dangerous and hurtful: thus the concentrated effluvia of marshes is deadly and venomous; but scattered and diffused, circulate among us innocently.

The generality of the French writers call it *la maladie de Siam* from a shapeless notion that it was originally from Siam, a country in the east: this contains as much truth as the opinion that it attacks sailors only; whence they call it *la sievre matelotte*. It is, in all probability, the cause or

* "Without the matrix of putrid vegetable matters, there can no more be a bilious or yellow fever generated amongst us, than there can be vegetation without earth, water or air." Rush vol. 3. p. 168.

febris ardens of Hippocrates, Aretæus and Galen. Trallian and Lommius appear to have seen this fever.

Ulloa makes mention of the vomito prieto prevailing, in a most horrible and destructive form, in Carthagena in the year 1729 and 1730*. It made its inroads in Barbadoes in the year 1696† a time long prior to the visit of Dr. Warren to that island.

Marsh effluvia appears to be either the decomposition of vegetables or water, whether inscrutably combined with something else, or insulated, I leave for farther investigation: in the decomposition of either, hydrogene is produced in considerable quantity. Water, in its liquid state, is a compound of hydrogene and oxigene, with an addition of caloric and a little common air: Its decomposition is effected by the rays of heat inserting themselves between the liquid particles until their separation is such as to annihilate the attraction of combination between the hydrogene and oxigene. Whether then an union, betwixt the oxigene and light, comes to pass, remains to be discovered; this I strongly suspect. The hydrogene being disengaged and insulated, and very much accumulated, or peculiarly combined, perhaps becomes the peccant agent.

It is worthy of observation that the bilious or yellow fever does not generally prevail during the heat of the summer; this may be owing to the greatness of the heat dissipating and scattering the hydrogene, or marsh effluvia, so as to enfeeble and render it innocent.

That a combination between the oxigene and light happens, is likely, first from their natural af-

* Voyage to South America, B. 1, C. 5.

† Hughs' History.

finitly to each other, and secondly from a phenomenon observable during ignition; the rays of light falling immediately upon the ignited combustibles, cause the flame to become faint and ultimately will extinguish every particle of the fire. The probability is, that this phenomenon is occasioned by the rays of light attracting and combining with the oxigene of the atmosphere, and thereby interrupting the process which was going forward between the oxigene and combustible bodies. To this there is an accession of additional strength from what takes place in vegetation.

A vegetable, kept in the shade, becomes white and sickly; when it is exposed to the light it revives and becomes healthy: this I apprehend flows from the light acting as a stimulus, and at the same time attracting from it its oxigene, with which it is necessarily charged in decomposing water for its nutrition. Vegetables when analyzed yield more or less of hydrogen. Hydrogen is that gas which in its struggle to ascend, meets with the electric fluid of the atmosphere and forms what, in vernacular vulgarism, is called jack-o-lantern—or when it has gained the superior regions and formed the upper strata of the air, comes into contact with the electric fluid, and effects what enjoys the appellation of aurora borealis or northern lights. It is also the principal agent in the motion of the aerostatic machines.

The yellow fever made its first appearance in the city of Baltimore in the last of August. The common bilious fever prevailed at the Point from June. A lady from Philadelphia, bringing with her the seeds of the disease, which were brought into action by the fatigue of the journey, was severely attacked with it in Charles-street, she had the genuine black vomiting, which resembled ink and coffee-grounds mixed, for two nights and a day,

miscarried on the sixth night of the disease—she notwithstanding recovered; no person in the family, nor neighbourhood had it during the whole season.

This, together with the number of cases of violent bilious fever at Fell's Point, threw the city, generally, into a combustion; the committee of health requested that the physicians would convene in order to give a report of the city; upon the convention of the physicians, it appeared, from their joint testimony, that the above-mentioned lady was the only person, labouring under the fever in the west end of the city, called the town in contradistinction to the Point. [I shall in what follows make use of the distinction of town and Point] The committee received a letter from doctor Coulter, a physician of great respectability at the Point. Doctor Allender, in person, waited on the committee, and gave information of that part of the city. It was requested by the committee of health, that some of the physicians of the the town would visit the Point; pursuantly to this request, doctors Goodwin, Moores and Davidge politely went, and waited on the sick individually; they were piloted by a gentleman who lives with doctor Allender, together with a student of doctor Coulter's. Their report was, "that there was nothing more than a violent remittent bilious fever prevailing:" This perfectly accorded with the sentiment which dropt from one of those physicians during his report to the mayor, "his reason (he said) why he did not report the case of the lady of Philadelphia, was a full persuasion, that the yellow fever, being of the same origin with a violent bilious fever, could not be multiplied, by an intercourse of bodies, under any circumstances whatever."

The above report is a strong and prominent feature of their discernment, and indifference to popu-

lar prejudices. A little after that period, the disease rising from the grade of a bilious to that of the yellow fever, mounted its chariot of death, and drove furiously through the streets, sowing dismay and mourning wherever it approached: conveyed by the north-east wind it scattered itself all along Federal-hill, and west end of the basin; whichever direction the miasmata (arising from the stagnant water and marshes about the Point and wharves) controuled by the winds, took, the disease tread closely in its footsteps. It evolved, in an horrid and dismal shape, its venomous dispositions in the south end of Hanover-street and its vicinity. After a short interval this deadly effluvia penetrated into the vitals of the city, and many who were not near the Point nor wharves, those exuberant fountains of mischief, took it, either in their houses, or in the streets. Not an inconsiderable number of those who were at the launching of the frigate received the disease, several of whom died of it afterwards up in the town; but, fortunately for the citizens, no person was infected from them. A very considerable part of the inhabitants of the Point fled into the country, and some from the town removed; a temporary desert was effectuated.

I scarcely need mention the daily deaths; the reports of the committee of health are inadmissible of an accession of testimony to give weight to their authenticity and accuracy.

The greatest number, in the the the town or west end of the city, in any one day was seven or eight; the list of the deaths at the Point was, for some time, considerable. This fever began to faint about the first of October, and was nearly or quite extinct on the first of November.

All endemical epidemics, as they depend on a peculiar constitution of the air, must of necessity

cease whenever this condition is destroyed, whether it be by frosts or rains.

The yellow fever, like all other epidemics, delights in solitude. An epidemic, whether endemical or contagious, depends on a general peculiarity of the air; which general peculiarity will have a general influence within its own dominion, and communicate a general aptitude to all bodies, within this jurisdiction, to receive its action. It chases away all others of lesser strength, as is justly observed, first by Diemerbrook, secondly by Sydenham, thirdly by Pouppe Desportes, and after them by Rush; who is perfectly correct where he says that no two epidemics, of unequal force, can prevail at the same time. How is it possible for two general and opposite constitutions of the air to exist at the same time? with equal propriety we would say that a cord can enjoy two distinct oscillations at the same instant; or that two particles of matter can occupy the same given space in the same division of time. But this every tyro should know.

Some of the first traces of the yellow fever in America are to be found about sixty or seventy years back. A physician, in conversation, the other day told me that he had met with the yellow fever in Baltimore ever since he had lived in it, which is fifteen or twenty years. It is violating all obligations of decency and truth to say that it is of recent date. The town of Baltimore, in proportion to its inhabitants, is less subject to this autumnal remittent or yellow fever, than the low situations about the Potowmac. A gentleman, who for some considerable time was one of the principal directors of the Potowmac business, informed me that one season they lost a considerable number of their workmen by the above fever. And that in no instance did it spread by contagion.

Disease is simple, and indivisible; it is the ab-

fence of health. But, for the facility of the pen, and ease of speech, we make disease an aggregate. It is not, at all times, proper to act the philosopher and metaphysician; we must accommodate ourselves to popular usage. Cold is the negation of heat, and darkness the absence of light. Ice is the natural state of water: yet custom, the standard of all languages, persuades us, in familiar conversation and common writing, to say it is cold, or it is dark, &c.

Every country has diseases proper to its climate and situation. Some diseases are common to every country and climate: Accident and particular circumstances will create sporadick diseases, in every country, not peculiar to them respectively; a disease proper to one country can, by the medium of intercourse, be carried into another and there propagated.

Britain has its scrofula, and typhus; the vicinage of the Alps has its goiter: the East has its plague; the West-Indies, America and other countries within or near the tropicks, have their remittent bilious fevers, and hepatick affections. It is not the import of this paragraph, that those diseases are exclusively generated in these countries respectively. The antagonist idea is incontrovertable. But as those complaints, although they may originate or be produced in every country and under every climate, most commonly and generally appear in those countries in the manner above-mentioned, I have taken the liberty to stile them proper to those individual climates. It is a concurrence of circumstances, and not given latitudes, that is requisite for the production of diseases.

The seeds of the remittent bilious yellow fever are engendered in putrid vegetables and stagnant water, and are vivified by heat and dryness. Those

who live in their neighbourhood, in warm climates, and during hot and dry autumns generally suffer more or less. The more elevated situations, and those distant from such sources in the West-Indies and America, most generally escape this deathful malady, except when the atmosphere becomes universally furcharged with the effluvia emanating from those exuberant fountains of mischief and poison; under such occurrences they unavoidably participate of the evil. This is echoed from the united voices of writers and practitioners.

Males, by being more exposed to this effluvia floating in the air, to the violent rays of the sun, to night-dews, and to the various, sudden, and great vicissitudes of the weather (these operate differently according to their respective natures) are more subject to this, and all endemical epidemics, than females, whose business is naturally within their houses, where the poison is blunted and rendered inert by the fires and smoke, and has itself dissipated by striking against buildings.

The skirts of most cities are occupied by the poorer class of inhabitants; their houses are exposed to the first and most violent assaults of all endemical epidemics; but as those epidemics intrench more the vitals and heart of a city, they are dissipated, enfeebled, and disarmed.

The remittent bilious yellow fever neither pities helpless infancy, nor reverences the decrepitude of age; but its chief delight is to jostle, from the stage of life, the young and vigorous. The many headed monster, armed with destruction and woe, wantons in the citadel of life: and now, Anthrophagi like, without warning or prelude implants his merciless dagger; and now under the garb of innocence, gambols in the cheek of health. The yellow fever is as fatal when with the investiture of an intermittent, as when habited in its regular

type. Having seen its birth and extract we make an easy step to its nature.

Dr. Rush.

“ The fevers generated by putrid cabbage, mentioned by Dr. Rogers, and by putrid flax mentioned by Dr. Zimmerman, were both contagious. Dr. Lind ascribes the yellow fever every where to marsh or vegetable exhalations ; and this fever, we know spreads by contagion. Dr. Lind jun. establishes the contagious nature of the marsh fever which prevailed in Bengal in the year 1762. I shall transcribe his words upon this subject. “ Although marsh miasmata (says he) first bring on the disease, yet contagion presently spreads it, and renders it more epidemic. Thus the Drake Indian continued free from the disorder for two weeks together, when she had no communication with the other ships ; whereas as soon as the disorder was brought on board, many were seized with it within a few days in such a manner as to leave no room to entertain the least doubt concerning its pestilential nature,”

Dr. Clark mentions a contagious malignant fever from marsh miasmata, which prevailed at Prince's Island in the year 1771, and which afterwards infected the Grenville Indian. The contagious pestilential fever in France, so accurately described by Reverius, was produced by an exhalation from putrid vegetables, particularly hemp and flax. Even intermittents, the most

The Author.

An endemick is a disease, that afflicts several people together in the same country where it reigns, arising from local circumstances or a peculiar condition of the air. It cannot be carried from one country to another, by the means of bodies and cloths. It affects more or less all within its own periphery. It cannot be carried, beyond its own atmosphere, by bodies diseased with it. No disease arising from marsh effluvia can be communicated beyond the atmosphere charged with this effluvia. Every disease arising from marsh effluvia, from the gentle intermittent to the furious yellow fever inclusive, then is endemick.

It does not appear, that any of the cases, in the antagonizing column, communicated themselves by means of the diseased bodies beyond the circumference of the atmosphere impregnated by the vegetable exhalations ; then if they did not, which is pretty obvious, act beyond the limits of the inquinatèd atmosphere, the probability is, that the vegetable or marsh effluvia waisted through the air did the mischief, and not the intercourse of bodies.

That a ship's crew was free from a disease this week, is no just argument, if they be infected next, that it must be by means of one diseased body communicating it to another ; the contaminated air may have enlarged its limits—a particu-

frequent and most numerous offspring of the marsh exhalation, are contagious. Of this there are many proofs in practical authors. Bianchi describes an intermittent which was highly contagious at Wolfenbuttle in the year 1666. Dr. Clark mentions a number of cases in which this mild species of fever was propagated by contagion.

Dr. Cleghorn has established the contagious nature of intermittents by many facts. After mentioning numerous instances of their having spread in this way, he says "These tertians have as good a right to be called contagious as the measles, small-pox, or any other disease." &c. *Vol. 3, p. 160.*

lar direction of the wind may have conveyed the bad air to the ship. Its happening posteriorly to a communication with the diseased, is no argument, except at the same time it be proved that this crew was without the controul of the ill-conditioned air. Marsh and vegetable effluvia finite at the distance of miles, this no physician doubts.

"These diseases (speaking of intermittents) make their first appearance in February and August particularly; tho' sometimes they appear sooner or later, according as the air is more or less disposed to produce them, which, of course renders them more or less epidemic." P. 51, Dr. Sydenham.

A question of importance and magnitude here emerges and invites our attention; it may serve to awaken a little our judgments and elucidate the present stage of the business. Why is it that the intermittent fever has never clothed itself in its contagious habiliment in America. It is rather problematical that it has ever done more mischief, or been more common and violent in any other country than in America. Here is a mystery equally dark on all sides; how are we to decipher the enigma?

" Intermittentes.

Febres, miasmate paludum ortæ, paroxysmis pluribus, apyrexia, saltem remissione evidente interposita, cum exacerbatione notabili, et plerumque cum horrore redeuntibus, constantes: paroxysmo quovis die unico tantum." Dr. Cullen, Tom. 2, Synop.

Dr. Cullen, the luminary of the medical world, has been careful to inform us, that he has never

met with contagious diseases arising from vegetable putrefaction.

Sydenham, cited by Dr. Rush, "the incomparable physician," positively asserts that an intermittent becomes epidemick from the *air*, and not by contagion. Dr. Jackson says that the intermittents and remittents become epidemick and spread by the marsh miasma being diffused through the atmosphere, and not by contagion (vide Jackson on the diseases of America). Dr. Gilchrist mentions in his tracts on sea voyages, that the marsh effluvia being scattered through the air becomes the source of popular diseases. That diseases, flowing from marsh miasmata, are incapable of becoming contagious has been considered, by the generality of physicians, as a fact almost self-evident. And I believe that few will long hesitate to determine between the authority of Sydenham and Cleghorn.

The unscientific notion of intermittents and remittent bilious fevers being contagious, is too ridiculous to find access even to the easy credulity of the unread peasant: but yet it is embraced by philosophick refinement. And what absurdity, though ever so enormous, has not at one time or another offended the dignified pride of delicate philosophy? organized absurdities, have long conspired against the progress of science, and tyrannized over the tender germs of juster systems.

Endemick is the antithesis of contagious. Endemick and contagious establish two opposite categories.

Contagion is the emission, from body to body, by which diseases are communicated. A contagious disease arises originally from human effluvia, can be carried, by means of the infected bodies, or cloths, from country to country, from city to city, from town to town, in fine from any one place to another; The yellow fever has not its birth from

human effluvia, cannot be spread, by means of diseased bodies, or wearing apparel, or bed-cloaths, from country to country, from city to city, from town to town, nor from one place to another—the yellow fever therefore is not contagious.

Either an endemick or contagious disease, becoming general, and affecting a whole country, or great extent of territory, claims, in technical language, the appellation of epidemick. It is not whether a disease arises from vegetable or human effluvia, but whether it has a general or universal action, that constitutes an epidemick. It is the universality of its action, and not the nature of the source whence it sprang, that stamps its character; whence two classes of epidemics—the endemial epidemick, and the contagious epidemick. The yellow fever ranges under the former, the plague under the latter.

Doctor Rush.

“It has been remarked that this fever did not spread in the country, when carried there by persons who were infected, and who afterwards died with it. This I conceive was occasioned, in part by the contagion being deprived of the aid of miasmata from the putrid matter which first produced it in the city, and in part by its being diluted, and thereby being weakened by the pure air of the country. During four times in which it prevailed in Charleston, in no one instance, according to Dr. Lining, was it propagated in any other part of the state.”

Vol. 3, page 157.

The Author.

When the intercourse of bodies, labouring under a fever, cannot, without adventitious auxiliary, support and multiply the said fever, the fever is not contagious; the yellow fever cannot simply and without the addition of the effluvia arising from vegetable putrefaction support and multiply itself, the yellow fever therefore is not contagious.

A little attention to the nature and operation of the small-pox, measles, or jail-fever, when conveyed into the purest atmosphere, will, in some measure, obviate the difficulty which obscures the

above fact in relation to the yellow fever. It is found upon experiment, that, uniformly the small-pox, measles, or jail-fever require nothing more than their own presence and virulence to perpetuate themselves. This is luculently apparent from the many melancholy instances of whole families being precipitated to their graves by the unfortunate introduction of servants, purchased from on board ships, infected with the typhus or jail-fever. Out of fifty persons, who might visit a patient labouring under the latter stage of the small-pox or measles, forty-nine, in all probability will be infected. I have selected those diseases, as they are common and known to every body.

In these diseases, which are essentially and absolutely contagious, no heterogeneous aid is necessary; in the yellow fever the addition of the marsh miasmata seems to be the *sine qua non*, in multiplying and propagating the complaint, and the efficient, occasional cause of its rise, independently of any assistance from bodies: and without the help of this miasmata, the bodies cannot generate nor spread the disease; hence it appears that the miasma produces the disease whenever and wherever it may occur, and not the bodies labouring under the complaint.

It is not my expectation to turn, upon the axis of a syllogism, the whole esculapian world—prejudice may for a time barr the understandings, but time and accident will eventually unlock the judgments of men.

Doctor Rush.

“ Let it not be inferred from the enumeration of the means of preventing the contagion of this fever, that I admit a contagious nature to be one of its characteristick marks. Far from it. It is an accidental circumstance produced chiefly

The Author.

A disease which is not essentially, and in its own nature contagious, is not, in strict propriety, contagious at all—the yellow fever is not essentially and in its nature contagious—the yellow fever is therefore not contagious at all. A dis-

by the concurrence of the weather." And on the same page. "It is in no instance contagious in some cases." Vol. 4, page 61.

ease which does not embrace and infold, in its very nature, radical, and inherent contagion, naturally repudiates the idea of contagion. Fire, elementarily, contains heat; and light is, intrinsically, luminous.

If the vegetable effluvia does and can, of itself, produce, perpetuate, and multiply the yellow fever: and if the human effluvia cannot and does not in any instance, of itself, produce, perpetuate, and multiply this fever, upon their fortuitous union; which is it that effects the mischief? The utmost precipitancy cannot endanger a decision.

The bodies diseased certainly produce an effluvia, which, by disturbing directly or indirectly the bowels, stomach, or sensorium commune, may destroy the equipoise of the animal system, and thus prove an exciting cause, in like manner with drunkenness or night-exposure; hence the aptitude of those who have to nurse, and wait on the sick, to be diseased. This is not by receiving it by way of contagion: but under those circumstances the equilibrium of the body is destroyed, the œconomy is disarranged, the vigour is unnerved, and an advantage is afforded the miasma to bring itself, with all its lethiferous appendages, into existence.

The government of a country is called good or bad, according to its nature; the best government becomes hateful and detestable from bad administration; but the administration is not physically consecutive of the government. In this instance we are to depose our minister, not change our civil system. Thus if we remove the patient, in the yellow fever, from the inquinated atmosphere, he is no longer dangerous or hurtful to the attendants.

Christology, the substratum of hope and life, has become hostile to the peace and safety of nations

by its administration, not by its nature, its essence is immortality and quiet.

Many things, in their nature, elude the most vigorous effort of the human intellect, and tantalize the grasp of genius itself. They present to us their modes, qualities, and effects; these, operated on by the medium of the senses, advertise us of their respective substrata. It is from the effects of human, and marsh effluvia, that we can have any clue to the secret of their nature. Like causes will always produce like effects, provided they operate upon the same order of patients. The human effluvia establishes one order of diseases, the marsh effluvia another, these orders never embrace—they have no intercourse. Of these identity forms the curve, and those effluvia the asymptotes, they apparently approximate, but they can never come into contact. The human effluvia can never produce the remittent bilious or yellow fever, nor can the marsh effluvia ever give origin to the typhus or jail fever.

Is it good logick, that a fever can arise from one source to-day, and from another, diametrically and physically opposite, to-morrow? This is certainly at variance with common ratiocination. Yet this must come to pass, if the yellow fever, originally, has its birth from vegetable putrefaction, and is afterwards perpetuated by contagion. Some have asserted that heat and cold, though different, produce the same effects. Cold is a relative term—it has no absolute existence—and that which has not an absolute existence cannot possess a positive action.

Sir Isaac Newton, who was a man of no humble genius, is of the opinion, that it is incompatible with the principle of philosophizing, in the expli-

cation of any phænomenon, to adduce more causes than are absolutely necessary for its solution.

After the above theoretical endeavour, we shall direct our attention, a little, to the authority of observation, and minute inquiry, of some of the most respectable writers and practitioners.

It is an unquestionable verity, a verity of the most publick notoriety, that not one, of the very great numbers who have left the cities and towns, some of whom have died and some have recovered, has communicated the yellow fever to those who have attended. Not one solitary fact has ever reached me; and my scepticism is such as to lead me into a persuasion, that there has not existed one unequivocal, well analyzed fact of a patient, going to the country, and there multiplying this fever.

“ It affects the inhabitants of cities, and not of the country, as in Charleston in the year 1732, 1739, 1745 and 1748. And in Philadelphia in the year 1793.” That is, it could not be propagated, by the diseased bodies, in the country. But that it can affect inhabitants of the country and also originate in the country is fully teneble. I know that my opinions here, as in other parts of this essay, are the antipodes of those generally received. But while I have facts, and those of the most stern and inflexible nature, I shall not be over solicitous about received whims whether popular or medical.

On the Potowmac Bottoms, and along the Monokocy, I have seen the most unequivocal cases. It is also, from the very respectable authority of Dr. Watkins, very common in different parts of Kentucky. Dr. Watkins was in Baltimore during the prevalence of the fever this autumn, and, with me, waited on the sick. He, after being provided of all necessary requisites to form an opinion, declared it to be precisely similar to that of Kentucky. He farther observed that the fever in that state fre-

quently was attended by the black vomiting &c. He said that it was considered there as an endemic arising from the marshes, and in no instances contagious.

It is true that Dr. Rush mentions an instance of this fever spreading in the country; but we want graver authority than inaugural theses afford. These, we all know, generally, are nothing but the echo of the prelections of a preceptor.

In the flourishing and growing city of Baltimore, we have had the most stubborn, and irrefragable proofs, of the yellow fever being incapable of supporting itself, in the cases which have occurred about the wharves and Fell's Point; after those cases were removed up into the city, they had their virulence to die with them, those who died; and from those, who recovered, all mischief and supposed contagion evanished into the empty air, which bore it to the pages of medical writers, not to the bodies of healthy attendants. This was the result in 1794 and 1797.

The unfortunate case, of the very respectable Dr. E. Johnson, with several cotemporary incidents, afforded a short-lived triumph to those who were wedded to the contagious system; but when their opinions, armed with all the address and subtlety of the authors, came in collision, with those of more erect and manly aspect, they felt their vacillating uncertainty, and ceded in candid contest.

Which is most consonant with probability, for gentlemen, going to an atmosphere, charged with poison and death, an atmosphere immediately wafted from the Point and concentrated under a hill, where many had been forced, by its deathful influence, to pass the bourn of life, and others to perceive death, with its black wings, to hover about them, to take it from those exanimous and moribund bodies or this death-bringing air? Taking

into view, at the same time, the fact, that none of those gentlemen, several of whom died up in the city, communicated, to any of their families or attendants, the disease.

Some even point out the luckless moment, in which the relentless malady seized them—at a particular juncture, I perceived something singularly offensive—in three hours after that inauspicious point of time, I became unwell: another was taken ill a day or two posteriorly to some ill-omened hour, in which the breath of the patient was breathed directly into his face, it was then he inhaled, with the pabulum of life, the fermenting leaven of death. Who, after these and such like melancholy tales, can hesitate to believe the yellow fever contagious?

I would no longer quarrel the sentiment of contagion, had one of the above occurrences taken place, in people, who were not, at the time of the imagined infection, in an impure atmosphere, or had not lately been exposed to air impregnated with the destructive miasmata. The fact is, those persons were all in this ill-conditioned air. I met with two cases, in two young men who had been at the Point at the same time, and were both attacked, on the same day, with all the regular symptoms of the fever, where the miasmata did not come into action until the eighteenth day—they were not, during the intermediate space, exposed to either sick bodies, or vegetable effluvia, having been in the country the whole time.

Whatever affects most our senses, we are prone to attribute our evils to: This is excusable in men unaccustomed to thought, but it is an incongruity in the common order of reasoning, and is at total variance with the notions of men of letters.

Logomachy is as inconsonant with my habits, as any two opposites in nature are inconsistent with

each other ; but I do not consider a war of sentiments fraught with mischief or good, a colluctation of principles, tending either to support or destroy the commerce of a nation, as the idle jar of words. It is no new act for men to force the most opposite and contending principles into the most cruel and unnatural union. Tradition, let it militate ever so much with common sense ; and an association of ideas, bearing no affinity nor cognation to each other, press us, too frequently, into most absurd beliefs and habits of thinking. I might here cause to pass in review before the reader's mind the great Lavater's philosophy of faces, that finished and polished physiognomy of folly. And where is a philosopher, bating a few, who does not stuff his works with the infinite divisibility of matter ? who has dared to quarrel the corollary, of the great Locke, that the human mind is, at first, as a blank sheet of paper, passive to the characters of chance ? and where are the friends of David Hume, who do not, to this day, believe, that, if an ass were placed between two cocks of hay, which impressed equally, he would starve, being unable to make a choice ? It is a good hint, that we should tread lightly on the ashes of the dead ; I feel its influence, and may David rest in peace, and his errors sleep in eternal silence.

Now were I to plunge into the vacuum of metaphysics, or enter the lists in the gipsy-jargon of pneumatology ; I should believe, with the peerless Reid of Glasgow, that the human mind possessed, inherently, action, vigour and choice ; that it operated upon surrounding objects, and was not the passive sport of incidental impression. Whence comes genius, the innate perspicacity of the human intellect ; genius, that heavenly offspring, at all times impatient of the trammels of control, and indifferent to the habits of education ? not from

the impressions of the beauties of Thompson, nor the more sublime of Homer. It is in-born. Did the mountains of Switzerland, give exertion to the mind of a Haller, or the banks of the Potowmac, infuse divinity into a Washington? that encyclopaedia of virtue and greatness, in whom may be found every ornament of human excellence; into him who first boldly dared, to rend asunder the strong ligaments of prejudice, to control the imperious tide of ancient usage; who magnanimously despised the boisterous torrent of vulgar obloquy, and challenged the herald of recording time? Collateral arguments are, frequently, as relevant as those arising immediately from the subject.

This apparent digression is to shew, that no name is above truth, that our care and solicitude should be the investigation and conservation of truth, not the support and protection of names and traditions.

Doctor Rush.

“An aptitude or predisposition from season, climate or constitution must concur to render the contagion of this, as well as other malignant fevers, sufficiently active to produce disease; as well might a traveller attempt to describe the climate of a new country, from the history of a single season, as a physician to fix the character of an epidemic from its appearance in one season, or one country.” Vol. 4, page 62.

The Author.

“The one (the yellow fever) is evidently caused by marsh effluvia heat, violent exercise in that heat, thick, hot, moist atmosphere; night air and dews, and the abuse of spiritous liquors. The other (the boubam fever) on the contrary, is caused by contagion alone. This is certainly the most remarkable difference; and constitutes an obvious, clear, and indisputable diagnosis.” Chisholm, page 147.

“But I never could observe any one instance, where I could say that one person was infected by, or received the fever from, another person who had it.” Hillary, page 145.

Dr. Jackson calls the yellow fever of Jamaica an endemick, and no where mentions its being contagious; who also is of the opinion that most

epidemicks spread by means of the marsh effluvia, and not by contagion.

Dr. Mosely styles it (the yellow fever) an endemial caufus, page 391. And ridicules the idea of its being malignant, pestilential, and contagious, as asserted by Dr. Warren, page 412. Dr. Warren, as Mosely justly observes, had scarce any idea of this fever at all, except in its description. Towne calls it *febris ardens biliosa*, but does not add *contagiosa*, and asserts it to be an endemick of the West-Indies.

That it appeared, at Barbadoes, anterior to the time (1725) fixed by Dr. Warren is evident from Dr. Gamble, who well remembered it to be very fatal, in the island, in the year 1691. That Warren's account of the disease is altogether fabulous is certain; this man, wrapt in hypothetical chaos, constantly erred.

Pouppé Desportes speaking of the *la maladie de Siam*, says; “*la régularité avec laquelle elle se reproduit, semble devoir la faire regarder comme une de ces maladies dont il faut chercher la cause dans la constitution de l'air.*” Page 191, Tom. 1.

Dr. Cullen supposed this disease to arise from human effluvia and therefore, placing it under the section of contagious diseases, called it *typhus Ictero-rodus*—but it is certain Dr. Cullen never saw the disease, and equally certain that he borrowed his idea from Dr. Warren—Dr. Cullen is consequently neuter on the present business.

As well might you say, that a skilful gardener could make a tree flourish in a soil unnatural to its growth, as physicians ingraft contagion on marsh exhalations.

In the almost endless chain of cases, wherein the clothes of those who have died, in the West-Indies, from the yellow fever, were brought to America, could contagion be explored but in one instance,

even by the sagacious industry of the indefatigable Rush. A gentleman's clothes being returned in a trunk to his friends ; a young gentleman, upon opening the trunk, became immediately unwell, but no other person suffered in the least. Those clothes, beyond a question, were damp, this dampness was by heat converted into effluvia, corresponding in every particular with *marsh-miasmata*. This effluvia, from the closeness of the trunk not being able to escape, remained in its offensive and concentrated state : And, upon the trunk being opened, applied itself in its full force to the excitable system of the young man. In this manner, from the water in the clothes being changed into marsh effluvia, and not from the clothes acting as the vehicle of the human effluvia, was this gentleman diseased. Now if the supposed contagion was so very vivacious as to perpetuate itself after so long a lapse of time, how is it that the recent emanations from his body treated with such great tenderness the attending friends, as not to interfere in the smallest degree with their healths ?

The idea of contagion is indirectly injurious to commerce, and directly to society. Under the influence of the persuasion, that there is one of the most violent of contagious diseases prevailing in several of the sea-ports of America, can we suppose that foreign ports will suffer our vessels to enter ? A long and dangerous quarantine must be performed ; the damages, accruing from such remora, the merchants too sensibly feel to be ignorant of. Even when our papers do not echo the melancholy tidings ; seeing that such disease has frequently visited our cities, is it not probable that they will guarantee, their own safety, by prohibiting the entrance of our vessels ? will they not naturally say ? the Americans have seen their error in rendering publick their diseases—their silence is a piece of policy

—the diseases exist. Interest, the main spring of human action, forbids their publicity.

From slender causes great events come to pass. Few could have supposed that the interest France took in the American struggle would have laid the corner stone of her ruin and overthrow?—The government I speak of. Athens was ruined solely by *Pericles* giving countenance and support to a despicable tribe of stage-actors. Upon a slender pivot play weighty matters.

Our extraneous interruptions are not the only inconveniences we labour under, domestic commerce is subject to arrestation, a general calm and stagnation in business enfeebles our ascent.

Has it ever been known that the yellow fever has been propagated, through Baltimore, or any other city, from a person bringing from Philadelphia this malady, even in instances where it has proven fatal? The archives of America will never notice such a fact.

Do not our grave proclamations, and serious resolves of city-corporations challenge our astonishment? what are these proclamations and resolves for? to prevent, what, from the earliest dawn of lapsing ages has never, and to the latest eve of expiring time will never, come to pass. Our interest and commerce fall a sacrifice, and are immolated at the shrine of our folly. As long as my reminiscence will afford me a knowledge of the proceedings of the health-committee of the city of Baltimore, I shall admire and esteem their judgment and good sense. Has the yellow fever ever been imported, from the West-Indies to America? report says it has, but where are proofs? smothered in murky obscurity; they fly the face and converse of investigation. Has this fever ever been carried from the West-Indies to Britain? No.

The poor unfortunate subjects of disease, flying from the cities, find the doors and windows of the country barred against them. The children leave their parents to die, and parents their children, their minds being jostled by the sound of contagion, from their proper seats. The lonely hearse solemnly conveys the dead to the dreary repository of the silent multitude, where reigns ~~darkness and~~ and death. Having considered the history and nature of the yellow fever, we make a natural transition to its symptoms, first premising a few pages on the proximate cause.

Thus

CHAPTER II.

PROXIMATE CAUSE ANALYZED.

THE fabrick of the pathology of diseases, has for more than two thousand years floated on the varying ocean of incertitude, the sport of winds and tide. When the microscopick eye traverses the hemisphere of medicine, it beholds theories hurled on theories, fancies crushed by fancies, and lesser errors smothered by those of greater bulk and effrontery. From the auspicious days of Hippocrates, we gently glide down the silent tide of time, collecting as we move the crazy wrecks of shattered systems, until we arrive at the fluctuating variety of modern hypotheses. Hippocrates, wrapt up in the flattering pretensions of his humoral pathology, and balancing between heat and bile, a long time swayed the sceptre of the medical world. From an attentive perusal of this author's works, heat or bile, or plethora or obstruction (for in different passages he speaks of all these) seem to constitute the proximate cause of fever. His successors soon perceived the futility of this foundation, and attempted to fabricate others more probable.

Diocles of Carystus, a physician who flourished at an early period, and a man of considerable eminence, asserted that fever was not so much a primary disease, as secondary and dependent on some more hidden derangement. In order to avoid the force of his doctrine, after physicians established the diversity of symptomatick and idiopathick fevers. Presently after Diocles, Erasistratus, a physician at the court of Antigonus, invited the attention of the world, his proximate cause resided in

an error loci. Next Asclepiades, the Bythinian, stepped on the stage and rudely grasped the reins of control ; he, adopting the doctrine of atoms, handed to the Greeks by Democritus of Abdera, attempts to account for the difference of types by a difference in the size of the corpuscles, which he supposed to be formed by a combination of indivisible atoms. Here emerges the doctrine of the obstruction of the permeable canals of the body, and its consequence modern viscosity and lentor, so famous in the schools. Asclepiades was the father and patron of the sect of the Methodicks.

Themison vibrated between *strictum et laxum*, and on those two pillars reared his pathology of diseases, here are the first traces of spasm, afterwards laboured by Hoffman and matured by the great Cullen : this hypothesis claimed the ascendancy, at Rome, for more than an hundred years. At last Galen, the impassioned admirer of Hippocrates, exhumed and reanimated the humoral errors.

Athenæus ventured to resuscitate the doctrine of the putrescency of the blood (this is comprehended in the writings of earlier authors) and putrescency has not made a very despicable figure in the world. Avicenna expressly defines fevers to arise from a preternatural heat of the heart.

The Galenists prevailed until the beginning of the sixteenth century ; about which time Aureolus Philippus Theophrastus, commonly known by the name of Paracelsus, began to make a figure. This man assailed the Galenical party with all the engines of effrontery and sources of unimproved chymistry. Here commences the period of medical romance, so fraught with the struggles between the mechanical and chymical modes of reasoning, these eventually neutralized, and ushered in the chymico-mechanical philosophy.

The furious archeus of Van Helmont, differently modified, is the efforts of nature, so celebrated by Campanella and Sydenham, and autocrateia of Stahl. If we except Mundy, Borelli and Cole are the only writers previous to the time of Hoffman, who considered the nervous system as directly affording a seat for the proximate cause of fevers: Here in more positive terms originates the spasmodick stricture. This idea of Hoffman, Cullen has elaborated to its utmost perfection. Who has taken the proximate cause from the heart, and fixed it on the superficies of the body, in an atony and spasm of the capillaries.

After the above recital the mind is restless, on the poignant tenters of expectation, to embrace a knowledge of the true nature and seat of the proximate cause. I shall, leaving the anterior whims to slumber with their authors, they being, by one obliterating stroke of the pen of Dr. Rush, sentenced to perpetual silence, take the liberty of putting the opinion of the celebrated Philadelphia Professor into the crucible of analitical inquiry. The opinion of Doctor Rush is the latest that I have met with in the writings of physicians. His words are "having premised these general propositions, I go on to remark, that a fever (when not misplaced) consists in a morbid excitement and irregular action in the blood-vessels, more especially in the arteries." "This irregular action is in other words, a convulsion in the sanguiferous, but more obviously, in the arterial system." Page 134. Vol. 4. "From the facts and analogies which have been mentioned, I have been led to believe that irregular action or a convulsion in the blood-vessels, is the proximate cause of fever." Pag. 139. Vol. 4.

There incontrovertably is a difference between a fever and the proximate cause of a fever; a fever

cannot consist in, or be made up of (these are synonymous) a convulsion in the blood-vessels, and a convulsion in the blood-vessels be the proximate cause of a fever. An effect and the cause of that effect cannot be the same. If the fever consists in, or is made up of, an irregular action or convulsion of the blood-vessel, what is the proximate cause? and vice versa. It is illogical to identify cause and effect.

The proximate cause, of which writers say *quod presens facit, sublata tollit, mutata mutat*, after being hunted from one part of the body to another, and metamorphosed from one thing into another, at last takes refuge in nullibiety; having for its associates Phlogiston* and the four elements;† and an honourable body they form, each having enjoyed its apotheosis.

In a disease there are three essential causes. The predisposing, or an aptitude of the body to be acted on; the occasional, which acts directly or indirectly on the seat of life and action, and the exciting, or that which destroys the equilibrium of the nervous energy, and by this destruction of the equipoise of the system gives the occasional cause an opportunity of victory. The causation or *modus operandi* which takes place between the occasional cause and the living principle is not accessible even to the most vigorous efforts of the human mind.

An offending entity (the occasional cause) assails the tranquility of the healthy body, a particular, though inscrutable, infraction of the harmony of

* That accommodating nonentity of Stahl, which so much and so long amused and ruled, one while under the form of fixed fire, now in the shape of fixed light, and anon in the investiture of the metallizing principle, the uncertain grasps of infant philosophy.

† Those four peripatetick follies which for so many hundred years disgraced the human understanding.

the animal œconomy is caused, evidencing itself by a chain of symptoms more or less unequivocal; these constitute the symptomata of writers, that (the primary derangement or infraction) the disease; here we observe a regular and simple concatenation of cause and effect, and the evidences of such an effect. We cannot apply the name of disease to an arrangement of symptoms, no more than we can the appellation of matter to an assemblage of qualities, or the epithet of spirit to a combination of modes, but to that particularly morbid state of the body giving origin to such an arrangement of symptoms.

Chills, fever, pain, prostration of strength, discolouration of the tongue, &c. are symptomatick of a hidden and essential derangement (a disease) of the nervous power. Figure, divisibility, extension, and solidity are indicative of an inscrutable material substratum. Passion, memory, and judgment are proofs of an immaterial essence (asking Dr. Priestley's pardon) the nature of which the labour of the human mind cannot develop.

The cherishing beams of philosophy have begun to dawn, and I hope soon will enable us to proceed with more certain step in the healing art. It is time that we should divorce from our minds the *pititio principii*, and, like Pyrrho, disrobe ourselves of credulous facility. This epoch demands self-evident premises or proven data for the groundwork of our inductions. *Jurare in verba magistri* is the motto of unthinking hebetude, but a master's nod ought not to block up the avenues of research.

CHAPTER III.

DIAGNOSIS.

THAT assemblage of symptoms, which generally are the appendages of any disease, and establish a barrier of division between it and all others, constitute its pathognomonicks or diagnosticks. The general characteristics, which disjoin the yellow fever from all others, are the following,

Its precursors are, in some instances, a prostration of spirits and an inaptitude to motion, a sense of uneasiness and great fatigue; pain and uneasiness through the limbs, as if from riding. It some times, without any premonition, impugns the guardians of life. It will in one instance assume the dress of the tertian, and in others clothe itself in all the characters of a cold. But let what will be its harbingers, it soon hangs out its own colours, and demands a tribute. The eyes become more or less affected by inflammation, accompanied with an acrimonious or burning epiphora; the head feels itself molested by pain and giddiness, and a sense of congestion; the tongue is indifferently white, yellow, blue, red, brown or black; in the first days of the disease it has an oily feel. A pyrexia attends; the skin is one while hot and dry, at other times preternaturally cold and clammy. The præcordia is much oppressed, attended by a great inclination to vomit. Vomiting not unfrequently, or a cholera morbus or a diarrhœa gives notice of the approaching calamity. The stomach in the latter stages of the disease labours under a sensation of having in it something which it cannot

digest; this sensation they attribute to whatever they have swallowed: A flatulency and hiccough help to fill up the train of evils. There is pretty uniformly a paucity of urine, and what is voided is very high coloured. A black vomiting or purging, hemorrhages from every part of the body, especially the stomach, uterus, bowels, nostrils, and the incisions made by the lancet in bleeding; carbuncles and numerous little boils, more or less, act their part in this tragical scene; the black matter and hemorrhages seldom appear until after the fourth or fifth day; yet they sometimes occur earlier. The countenance has a peculiarly ferocious look. The eyes are with the redness, tinged with a croceous colour; this yellowness frequently diffuses itself through the whole superficies of the body.

There is in some cases, about the fifth or sixth day, a cessation of the fever, and all the violent symptoms, every thing becomes apparently favourable, and the physician will augur auspiciously; but this is a mournful circumstance; it is the powers of life ceding, and not a relaxation of the disease; especially if yellowness and hemorrhages co-exist. There is frequently a metastasis to the testicles.

In puking the patient some times throws up nothing but what is taken into the stomach rendered a little ropy, at other times a black liquid resembling a mixture of foot and water is ejected.

The blood when abstracted is seldom covered with a buffy coat, but generally is what we call, a dense, red blood; it rarely is dissolved. An obmutescence, and deafness are among the last marks of an approaching dissolution, they are truly prophetic of death. The sensibility of the surface of the body is exceedingly morbid; and on

the least touch communicates uneasiness ; this preternatural excitability I have met with in a surprising degree.

Not unusually a considerable degree of delirium accompanies this most prominent in the black catalogue of human ills. Perhaps there is no complaint, from the effect of which patients are so long convalescing. Small purple spots very often variegate the arms, breast, and neck ; they are ominous of peril.

By the dissection of defunct bodies, we get a view of the dreadful ravages of this relentless malady : We behold the stomach disfigured with sphacelated spots, and characters of inflammation. The liver swollen, and exhibiting every mark of phlegmasia : The spleen preternaturally flaccid : The gall-bladder turgid with black and acrid bill ; the whole of the primæ viæ, when a natural diarrhoea co-operates, is manifestly affected with erysipelatous inflammation, which by the way is the species of inflammation that attacks the stomach, and this, probably, is reason why the blood, when abstracted, is not fizy ; were it of the phlegmonoid species the size on the blood would uniformly appear ; in some cases this species of inflammation does attend, and in those the pleuritic coat, cæteris paribus, proclaims its presence. The erysipelatous species is generally too rapid in its progress to mortification to communicate the buff to the general mass of blood. That the buffy coat is an inseparable and infallible sign of inflammation when accompanied by fever, and vice versa : See the experience of the most enlightened and assiduous practitioners ; also the professors of Edinburgh ; under whose wings, were folly and ignorance to deluge creation, learning and science would find shelter.

The lungs not unfrequently show marks of

inflammation. The encephalon is pretty uniformly implicated in the testimony of the general destruction occasioned by the yellow fever operating on the animal frame: Its meninges are found inflamed, the cortical and medullary substance itself is unusually red.*

This disease attacks sometimes with such violence and ferocity, as, either from its force or the feebleness of the patients, to supersede, by death, most of the above-mentioned appearances.

The black vomiting, hemorrhages, cerebral affections, yellowness of the eyes and skin, purple spots, and pyrexia being the most conspicuous and inseparable diagnosticks of the complaint, merit more seriously our particular discussion.

The bile, in its natural and healthy state, is as bland and mild as any secretion in the human body, but when the liver is affected by any specifick action, its secretory function, like similar physiological processes, is subject to vitiation; and that this black matter, discharged indifferently upwards or downwards, is vitiated bile, depending on a morbid action in the secretory organ, is obvious.

1. From the great quantity which is found upon dissection, in the gall-bladder. 2. From its great acridity.* 3. From its analogy to other disordered secretions: For instance that of the kidney in diabetes, of the stomach in dyspepsy, of a sore when it becomes, as we generally phrase it, vitiated. Laudable pus is a secretion, so is the acrimony escaping from a vitiated, a cancerous, or a scrofulous ulcer. The atrabilis of the ancients perfectly accords with the black vomiting of the moderns. Some physicians have persuaded themselves that this black matter is owing to an admixture of blood, and that there is an absolute want of secretion in the yellow fever; this opinion, I

* Vide Pouppe Desportes, Hillary, Mosely, Rush, &c. &c.

must believe, has a more intimate affinity with prejudice, than with reflection.

Hemorrhages seldom overtake the patient in the early stage of the disease, except under the form of epistaxis, which is not commonly considerable. When they do occur, they are the indubitable evidence of an atony or paralysis of the blood-vessels and this atony in its turn depends on a destroyed vigour of the nervous power; this destruction of the nervous influence is effectuated by the peccant agency operating directly and immediately on the sensorium commune. It is the result of a violent action on the immediate seat of life, and not of the vascular, or arterial system; the blood-vessels can only be acted on secondarily. If we could timously diminish the quantity of the hostile entity, we should infallibly prevent those sanguineous fluxes. Moderate blood-letting, by lessening the volume of the blood, will also contribute considerably to that end; but too profuse bleedings, by robbing the system of its sources of recovery from so violent a shock, precipitate the unhappy sufferer to his grave. That a violent action on, and not a smothered or incontrollable exertion of the system, lays the foundation of those hemorrhages, is patent. 1. As they do not accompany phrenitis or pneumonia where the vascular exertion is much more fierce, coercive, and oppressed. 2. Blood-letting after the second or third time, except in particular habits, when it is pretty copious, so far from relieving the imaginarily oppressed pulse, rather renders it more feeble and yielding. 3. In the most violent attacks, where there exists the greatest degree of indirect debility, the propriety and safety of immoderate phlebotomy are in the inverse ratio of this indirect debility. I speak from my own experience, and that of Hillary, and Pouppé Desportes who carried

the lancet to its greatest extremes; and possessed the most ample opportunities of seeing its advantages and disadvantages; not for one season only but for fifteen or twenty years, during which time he practiced in the West-Indies; as also of several of the most respectable physicians in the city of Baltimore. Lastly hemorrhages are more apt to occur in those who have been copiously, than in those who have been moderately bled; provided untimely death, superinduced by those large evacuations, does not obviate them. So is mortification about the orifices made by the lancet. Pouppe Desportes, speaking of those hemorrhages, and mortification, remarks; “ Dans plusieurs les saignées se rouvrent, et le sang, malgré le nombre des compresses, pénètre, cette hémorragie est souvent accompagnée d’une gangrene charbonnée, qui se forme autour de la saignée, et dont on ne peut, arrêter le progrès.” And a little below.—“ Cet accident arrive ordinairement à ceux qui ont été trop saignés.”* I shall speak more diffusely on this when I arrive at the therapeutick division of this publication.

The Encephalon, although subject to inflammation and partial infarction, cannot labour under general congestion; that is, the brain-case cannot contain more at one time than another; except before the bones and sutures become firm and ossified, and in cases where the sutures are afterwards destroyed by diseases. The medullary substance of the brain is incompressible,† and the case itself is unyielding: When a congestion of the right side of the head happens, there is a simultaneous, and equivalent diminution of the *ariae* of the vessels of the left. In case of hydrocephalus there is a general invasion of the *ariae* of the cere-

* Vide Tom. 1. p. 200.

† Vide professor Menro’s incontrovertable experiments.

bral vessels. In some instances the cortical substance is worn away by attrition. If a general congestion of the brain could take place, a partial vacuum would of consequence be possible; and if a partial vacuum took place, the plates which are behind the eye-balls would unavoidably be forced in, and instant death be the result by the weight of the external air: The columns of which, in weight amounts to about forty-two pounds on each eye, allowing fourteen pounds to each square inch.* The posterior plate that supports the eye is frequently so thin as to be quite diaphanous. The inference is that either an inflammatory or partially congested state of the brain must give support to that delirium, vigilance &c. we observe in the yellow fever and many other complaints.

This receives accession of certitude from the circumstances attending the decapitation of an animal; when the head of an animal is severed from its body, all the blood discharged is from the external parts of the head, not one drop escapes from the internal. This is substantiated by the following experiments. Dissect the vessels to their exit from the skull, then secure them firmly by a ligature, this being done, divide the case and you will find every vessel regularly filled and replete with its contents having suffered no evacuation.

Again, take a glass-globe with two opposite orifices, fill it with water, then put your finger upon one, and turn the other downwards; no water will escape until you remove your finger from the superior orifice. Nor can the contents of the skull be either decreased or augmented, except the case previously be exposed to violence.

The yellow or brown colour of the eyes and skin is owing to an absorption of the bile or brown matter after it is secreted. There is sometimes a

* Vide Hale's experiments.

tempory yellowness of the skin, this may be produced by a peculiar action of the blood-vessels.*

The purple spots constitute a pathognomonick, they are neither the production of an over action of the system, nor a dissolved state of the blood. They are to the yellow fever what the red spots are to the cynanche maligna, or the eruptions of the skin to the measles; they are symptomatick, and no regular consequence of the general state of the fluids or condition of the solids.

Pyrexia or fever, as asserted by Dr. Clark,† and afterwards by professor Rush, is simple, and has no generick difference; there is but one fever: A fever is the mode of a disease, and not idiopathically the disease.‡ It, with other concomitant qualities, evidences an infraction of the harmony of the animal œconomy. Extension and figure are the qualities of matter; thought and reminiscence the modes of spirit.

Small pox propagate small pox, and measles the measles: The small pox and measles are generically different; a fever accompanies both: If the fever were idiopathick in either, a fever would possess generick difference. A fever is simple or an unit, the corollary is then, a fever is the mode or quality of a disease.

Fever is a convulsive action of the arterial system, as mentioned by Dr. Rush, accompanied by more or less of a peculiar and indescribable heat and dryness of the skin: The dryness and heat though are not always present; as in the febris typhodes. This convulsion of the arterial system is the result of a more inscrutable and hidden morbidity of the source and seat of life and action, the nervous power. The muscular fibre

* Vide Rush.

† Vide medical commentaries by Dr. Duncan.

‡ Vide Diocles.

possesses no vis insita, its sensibility and contractility are feudatory of the vis nervia.*

The source of life and action must be originally and primarily concerned in all the operations, whether morbid or healthy, of the animal body. The nerves are the “seat and throne” of all diseases.

Whether a fever be the result of a mere mechanical action, or the provident effort of the vis medicatrix naturæ, that power in the body to heal its own maladies, I leave to the more learned to determine. But there is a something about a fever which is easier recognized than developed.

A peccant entity, acting either mediately as in the form of fracture or wound, produces fever indirectly; or immediately as in the shape of human or marsh effluvia &c. produces fever directly. In both cases the fever is the same, and symptomatick: In neither is it idiopathick. It is nothing but a symptom of a more primary and essential derangement of the nervous energy.—This primary and essential derangement is uniformly the disease; whatever succeeds is only indicative of this first disturbance of the quiet of the animal system.

* Vide Monro's nervous system.

CHAPTER IV.

C U R E.

WE now arrive at the division of this essay which is the most interesting and merits the most serious and unbiaſed investigation. And leaving the ſlippery declivity of hypothetical change, we introduce our readers to the more unequivocal and inflexible data of practical experience : where feeble theory is ſupplanted by more certain practice, where the ſick bed triumphs over the reveries of the cloſet.

Dr. Ruſh, in manfully and ſucceſsfully labouring to ſtem the torrent of error and prepoſterous madneſs which had diffuſed themſelves throughout, and woven the tiſſue of general practice ; and calling the medical mind back to the almoſt antiquated ſystem of depletion ſo fortunately purſued by Sydenham, Cullen, Monro, Gregory, Botallus, Pouppé Deſportes &c. has attached immortal honour to himſelf, and, uſing a galliciſm, deſerved well of mankind. The doctor's exalted dignity elevated him above the mean wiles of plagiarism. He, with the candour proper to great minds, frankly acknowledges his obligations to preceding writers. I am though conſiderably perſuaded that in his ſtrenuous exertion to cruſh the growing folly of medical prejudice, which took root in the execrable writings of Brown of Edinburgh, and Kirkland of England, he has ſuffered himſelf to be hurried within the embraces of the oppoſite extreme. It is beyond contradiction that the experience of

some of the most scientific and best informed physicians, will not warrant the extremes of depletion inculcated in his learned works.

In the management of the autumnal remittent or yellow fever there are four therapeutic intentions.

1. To diminish the violent action of the general system and remove as far as possible the inflammatory disposition of the liver, stomach, &c.

2. To take off the stricture of the superficies of the body.

3. To discharge the acrid bile as quickly as it is excreted.

4. To restore the vigour of the frame as soon as possible after the fever has subsided.

The first intention is best accomplished by a judicious and proper use of the lancet, together with a speedy introduction of mercury, either in the form of calomel or ointment, into the system. It will too often happen from an over excitability of the stomach that the calomel cannot be used. When this occurs the mercurial ointment must be freely applied to the insides of the thighs, legs, and arms; those parts being the most abundantly, of all the external parts of the body, supplied with the lymphatics.

Calomel is the most efficacious and powerful of all medicines in the resolution of inflammations of whatever kind they may be. But in those of the liver its salutary effects are peculiarly deserving our notice. For this valuable information we are principally indebted to Dr. Gilchrist of Scotland and the practitioners of the East-Indies.

When we enter the room of a patient in this fever our first attention should be to the state of the eyes, the degree of pain in the head, oppression about the præcordia, and fullness of the pulse. This is seldom or never hard; indeed the stroke of the

artery is more deceitful in this fever, than in any other disease I have ever met with. If the eyes be much inflamed, or labour under a sense of protrusion from the sockets, or an unwieldiness in their motion : an acid epiphora frequently distils from the eyes ; together with the above if the head complains much, the pulse appear full to the application of the fingers, and be frequent ; we must instantly have recourse to the lancet. Even should the tongue at the same time be blue or brown. The colour of the tongue is not to be in general confided in. It is sometimes blue or brown from the first days of attack. Whilst ever the pain of the head, or back continues, with a very frequent or full pulse the lancet must be resorted to. This though will rarely be the case after two or three good bleedings, except in particular habits. Some habits will bear the lancet to the fifth or sixth repetition, especially where the indirect debility of the system is not great ; where there is great heat of the surface of the body, and the tongue white.

A timous use of the lancet more effectually than any other remedy, tends to prevent the rapid progress of the inflammation of the different viscera. When it has taken place blood-letting promises more liberally than all other remedies. But when bleeding is carried to too great extremes, it exhausts the general system and prostrates the powers of life in so great a degree, that the animal frame can never renew its functions ; it hastens, by robbing the blood-vessels of internal support and nourishment, that atony and palsy of the vascular system which lays the ground-work of those melancholy hemorrhages.

When blood-letting is had recourse to, it should be practiced within the first three or four days. It may, under particular circumstances, be performed at later periods, but not with such propitious conse-

quences. I have practiced it, as late as the tenth and fifteenth day of the disease, in instances where the patient's strength had not been sapped by evacuations.

Experience together with the writings of most of the respectable practitioners of the West-Indies establish the following,

Those who were not bled suffered from the neglect of the lancet.

Those who were bled largely died from the abuse of the lancet.

Those who were bled according to the pain of the head, fullness of the pulse, and oppression about the præcordia, or in other words moderately, in a much greater proportion recovered. Bleeding is by no means new in the yellow fever.

There were two young gentlemen, who in a visit to the Point contracted the disease: They were both taken ill a few day after their return to the Town. One of them was blooded six or seven times, and died. The other was bled once only and recovered. The violence of the attacks was apparently equal.

A little after, there were two others who took the disease by going to the contaminated atmosphere; one of whom was bled six or seven times within about forty-eight hours, was put into the cold bath, had injections of cold water; he died, amidst the hands of the operators, during the third injection of cold water. The other who was delirious almost from the first onset of the complaint, was not bled at all, yet after a severe and dangerous illness recovered.

There were two other cases, one of whom lost about as much as would be taken away at four common bleedings, and recovered. Though no patient could be worse than she was to recover.—The other was bled twelve or thirteen times, his

arm mortified and he departed from among the living. Out of six who took the disease at or near Bowley's wharf, five, some of whom were so much evacuated that their friends threatened to interfere, died. The one, Mr. Waters, who escaped was bled but twice and that inoderately. There were a few instances of recovery after those profuse evacuations, but they were relatively few. Where one, after such immense losses of blood escaped, there were ten who were either not bled at all, or but once or twice, that recovered. Out of all the blacks, for negroes by no means escaped this complaint, whom I attended from the first attack of the disease, and they were not few in number I lost none. I bled but one, and him only to the amount of six ounces. I do not recollect that I met with a single instance of hemorrhage in a black person.

Calomel not only is the most effectual medicine that can be used in the first stage, but is also the only one in which we can have confidence to remove the stricture of the surface of the body; especially when assisted by the warm bath, either generally or partially applied. I have seen the ephidrosis produced to that extent by a liberal use of calomel, as to require three or four changes of linen in twenty four hours.

Calomel not only cures by acting as a diaphoretic and antiphlogistic, but also by establishing in the system an opposite action to that of the fever. No two general actions can exist at the same time: So that when the mercurial action takes place the morbid one must, of necessity, cease. The establishment of this mercurial action is confirmed to the practitioner by a free ptyalism. Whenever a free salivation takes place the patient is safe. Perhaps no person ever died after the full establishment of this discharge from the gums. Not that the

salivation, strictly speaking, is of any service in itself. It is in the yellow fever, as in the lues venerea, the unavoidable consequence of the general mercurial action of the system, and of no farther service than informing the physician of this general action.

That the local pain is of no advantage is evident from the following: Let the gums become ever so much inflamed, pained, and swollen, if a very free spitting should not succeed, the sick reaps no advantage, but on the contrary this state of the gums is ominous of approaching death.

To invite the mercury to the surface of the body, the tepid bath should be used, or in its place the pediluvium, and local applications of flannel, wrung out of hot water, to the regions of the liver, stomach, &c. These should be frequently repeated, and continued, at least, half an hour each time.

The cold bath has been very strenuously recommended by Jackson. But it does not appear from his writings that he ever used it with success without its being preceded by the warm bath: This together with its ill effects whenever it has been introduced into practice in America,* render it probable that Jackson attributed to the cold, what belonged to the warm bath. If it has ever been of the slightest utility in cases in America, these cases have not as yet found their way to the public. I say from the cold bath, in the practice of Dr. Jackson, being uniformly preceded by the warm, and its general failure in America when used alone, I am fully persuaded that it not only is a useless, but a dangerous application in the yellow fever.

Emetics even of the gentlest kind are inadmiss-

* Vide Rush.

fible in every stage of the fever.* No preparation of antimony, from the tendency in those articles to excite vomiting, can be used with safety. The justly celebrated James' powder is here of too precarious operation. All neutral salts are too inert and uncertain.

Whether, upon being called to the patient, we bleed, or not; we must instantly order a mercurial purge, which should be repeated every day or every second day, so as to produce four or five stools daily, this number he at least ought to have. To assist the operation of the cathartics; the lower part of the intestines must be opened by means of glysters. A glyster-syringe will with great propriety and utility be kept constantly in the patients room, that by the use of this the purges when they are too slow may be quickened and invited downwards. For as above mentioned the sick should never have less than four or five passages a day during the strength of the fever. Cathartics are of all remedies the best and most useful. They are not to be omitted even in cases where the pulse is feeble, and intermitting: If purges cannot relieve the patient, his chance is truly melancholy.

In support of the great necessity of constant purging consult Moseley, Hillary, Pouppé Desports, and the learned Rush. I had my patients to call for the close-chair from three to ten and fifteen times a day. And those who purged most, when not accompanied by puking, recovered soonest. In one case which I was called to, four grains of calomel produced thirty-five stools: after which evacuation the patient began to mend and recovered. A patient, to whom I was called, took a little broth which rendered him much worse than he had been the preceding day. I ordered him

* Some practitioners have given emetics in the instant of attack with supposed advantage.

thirty grains of jallap and ten of calomel (my usual dose) which operated twelve times; and from that instant he began to recover. It was to the repeated use of cathartics, and mercurial diaphoretics that I trusted the blacks to whom I was called.

Of all cathartics, I prefer gamboge and calomel, or jallap and calomel. By the timely use of the former of these I prevented the regular course of this fever, in at least thirty patients, who upon the first appearance of the disease called on me.

The fourth and last intention is employed principally in selecting those articles which will the most readily restore the exhausted strength of the patient. From habit and prejudice in this stage of the disease, physicians generally fly to the well known powers of bark and wine, opium and æther, colombo, and quassia, &c. But although these medicines are in appearance our hope and reliance; a just pathology and experience will quickly evince the impropriety and hurtful tendency of all tonic and stimulant remedies. The snake-root itself is too great a bitter, and must not, except under particular circumstances, be exhibited. Our sole trust and dernier resource is in a well regulated dietetic plan, with now and then a purge to keep the bowels open. Nor must the inexperienced suffer the weakness of the patient to frighten them from the free use of purgatives.

The habits and desires of the stomach are chiefly to be consulted after the fever has subsided. But during the height of the fever, neither flesh nor any thing made of flesh can be allowed. Vegetables are the only articles of food that the patient can be indulged in while the fever possesses any considerable strength.

The patient must never take any beverage stronger than barley-water, lemon-ade, cold water, water

with a toast in it, and such like mild potables. Some physicians are too cautious in giving cold water, and lemonade during the use of mercury. But I am satisfied from daily practice that no drink is more innocent and beneficial in a fever, especially the yellow fever, than lemonade, and cold water : nor are we to discontinue the citric acid even during the use of calomel. Chymical affinities might induce us to believe that upon an union of the acid and calomel, the latter would, by decomposing the former, and attaching to itself part of its oxygen, convert itself into the oxigenated muriate of mercury, or what is vulgarly called corrosive sublimate. This though in fact does not happen. If any acid possessing a greater affinity, to the base of calomel, than the muriatic, be used, the muriatic acid will be precipitated, and a new neutral, formed by this more powerful acid, and the base of the calomel viz. mercury, will be the consequence.

Blisters are sometimes useful ; particularly when applied to the epigastric region. They quiet the disturbance and excitability of the stomach. They are not unusually applied to the extremities and other parts of the body, but perhaps more from custom and fashion than conviction of their real use.

Opium may, in the last stages when there is no fever present, be given in very small quantities, thereby to take off for a few hours the great irritability of the stomach. But all opiates must be followed, within six hours after they are given, by cathartics ; otherwise their stimulant qualities will far more than counterbalance any advantages the patient may at first receive from them.

During the moribund state of a patient, I have made use of æther and musk, but my views con-

templated the removal of particular symptoms, such as hiccough, twitches of the tendons &c. which very much distressed what few friends there were who had courage enough to come near the departing sufferer; and by no means the cure of the complaint. They serve under such circumstances to smooth the passage to the grave, they cannot deliver from the pounce of the fell malady.

When hemorrhages do overtake the unhappy sufferer, general experience has painfully convinced us of the impossibility of managing them by astringents whether internal or external, except in those of the uterus where applications of cold vinegar for the most part answer. We are here still to pursue our general plan.

All applications to the carbuncles which oft accompany this fever, are useless. They may do mischief but we can expect but little benefit from them. Nor does opening of them seem to answer any good end. It is best to leave them to nature.

Appendix.



DURING the time that the foregoing Treatise was at the press, I accidentally met with the answer of the Physicians of Philadelphia, to the request of the governor, the hon. Thomas Mifflin—in relation to the yellow fever. A perfect and harmonious coincidence unites our sentiments, so far as they respect the origin and cure. For the satisfaction and benefit of the public, I will insert the letter.

SIR,

“ IN compliance with your request, the subscribers have devoted themselves to the investigation of the origin, progress, and nature of the fever which lately prevailed in our city; and we have now the honour of communicating to you the result of our enquiries and observations.

We conceive the fever which has lately prevailed in our city, commonly called the yellow fever, to be the bilious remitting fever of warm climates, excited to a higher degree of malignity by circumstances, to be mentioned hereafter.

Our reasons for this opinion are as follows :

1st. The sameness of their origin, both being the offspring of putrefaction. Of this there are many proofs in the histories of the yellow fever in the West-Indies. Where there are no putrefaction the West-India islands enjoy a perfect exemption from that disease in common with northern climates.

2d. The yellow fever makes its appearance in these months chiefly in which the bilious fever prevails in our country and is uniformly checked and destroyed by the same causes; viz. heavy rains and frosts.

3d. The symptoms of the bilious fever are the same in their nature. They differ only in their degree. It is no objection to this assertion that there is sometimes a deficiency or absence of bile in the yellow fever. This symptom is the effect only of a torpid state of the liver, produced by the greater force of the disease acting upon that part of the body. By means of depleting remedies this torpor is removed and the disease thereby made to assume its original and simple bilious character.

4th. The common bilious and yellow fever often run into each other. By depleting remedies the most malignant yellow

fever may be changed into a common bilious fever and by tonic remedies, improperly applied, the common bilious fever may be made to assume the symptoms of the malignant yellow fever.

*5th. The common bilious and yellow fevers are alike contagious, under certain circumstances of the weather and of predisposition in the body. That the common bilious fever is contagious we assert from the observations of some of us, and from the authority of many Physicians who have long commanded the highest respect in medicine.

6th. The yellow and mild bilious fevers mutually propagate each other. We conceive a belief in the unity of these two states of fever to be deeply interesting to humanity, inasmuch as it may lead patients to an early application for medical aid, and physicians to the use of the same remedies for each of them, varying those remedies only according to the force of the disorder. It is no objection to this opinion that, that state of bilious fever called the yellow fever, is a *modern* appearance in our country. From certain revolutions in the atmosphere as yet observed only but not accounted for by Physicians, diseases have in all ages and countries alternately risen and fallen in their force and danger. At present a constitution of the atmosphere prevails in the United States which disposes to fever of a highly inflammatory character. It began in the year 1793. Its duration in other countries has been from one to fifty years. It is not peculiar to the common bilious fever to have put on more inflammatory

* This argument, the spirit of which states this and the bilious fever to be contagious, appears to be the offspring of conjecture and a biased education. Whatever the exertions and perspicacity of some individuals of Philadelphia may have explored I cannot determine. But, in my candid opinion, the observations, which deceived them into the persuasion that the bilious fever is infectious, are, like Dr. Priestley's chymical experiments, somewhat defective. Many physicians of eminence have asserted, in their writings, the above fever to be contagious; but they have neglected to accompany those conjectures with tributary facts to support and give life to them.

There is not, so far as my reading extends, one solitary case of a contagious bilious fever in the records of medicine: I say not one case wherein contagion has been, or can be proved. And here, reader, my opinion is propugned and countenanced by Cullen, Sydenham and many more of the most learned and experienced of physicians. Bilious fevers spread by what those learned gentlemen in the latter part of the following paragraph call "a constitution of the atmosphere which prevails in the United States and disposes to a fever (the bilious or yellow fever) of a highly inflammatory character. It is this constitution, effectuated by the marsh effluvia or vegetable putrefaction being diffused through the air, which in the first place gives rise to, and afterwards renders epidemick or general the bilious or yellow fever, as those gentlemen in what follows of their reply wisely allow. Those who wish to be satisfied that this fever is not contagious, will do well to pay particular attention to the cases instanced in the above letter.

symptoms than in former years. There is scarcely a disease which has not been affected in a similar way by the late change in our atmosphere and that does not call for a greater force of depleting remedies than were required to cure them before the year 1793.

7th. And lastly. The yellow fever affects the system more than once, in common with the bilious fever. Of this there were many instances during the prevalence of our late epidemic.

The fever which lately prevailed in our city appears from the documents which accompany this letter to have been derived from the following sources.

1st. Putrid exhalations from the gutters, streets, ponds and marshy grounds in the neighbourhood of the city. From some one of these sources we derive a case attended by Dr. Caldwell on the 9th of June—one attended by Dr. Pascalis on the 22d of July, and by two cases attended by Dr. Rush and Dr. Physic on the 5th and 15th of the same month; and also most of those cases of yellow fever, which appeared in the northern parts of the city, and near Kensington bridge, in the months of August, September and October. We are the more satisfied of the truth of this source of the fever from the numerous accounts we have received of the prevalence of the same fever and from the same causes, during the late autumn in New-York and in various parts of New-Jersey, Pennsylvania, Maryland, Virginia and South Carolina, not only in sea ports but inland towns. The peculiar disposition of these exhalations to produce disease and death was evinced early in the season by the mortality which prevailed among the cats and during every part of the season by the mortality which prevailed in many parts of our country among horses. The disease which proved so fatal to the latter animals is known among the farmers by the name of the yellow water. We conceive it to be a modification of the yellow fever.

2ndly. A second source of our late fever appears to have been derived from the noxious air emitted from the hold of the snow Navigation, capt. Linstroom, which arrived with a healthy crew, from Marseilles on the 25th of July, and discharged her cargo at Latimer's wharf, after a passage of eighty days. We are led to ascribe the principal part of the disease which prevailed in the south end of the city to this noxious air, and that for the following reasons.

1st. The fever appeared first on board this vessel and in its neighbourhood, affecting a great number of persons nearly at the same time, and so remote from each other that it could not be propagated by contagion.

2dly. There was in the hold of this vessel a quantity of vegetable matters, such as prunes, almonds, olives, capets, and several other articles, some of which were in a state of putrefaction.

3dly. A most offensive smell was emitted from this vessel after she had discharged her cargo, which was perceived by persons several hundred feet from the wharf where she was moored.

4thly. A similar fever has been produced from similar causes, in a variety of instances: we shall briefly mention a few of them.

At Tortola a fever was produced in the month of June, in the year 1787, on board the ship *Britannia*, capt. James Welch, from the noxious air generated from a few bushels of potatoes, which destroyed the captain, mate, and most of the crew, in a few days.

Two sailors were affected with a malignant fever, on board the ———, capt. Thomas Egger, in the month of March, 1797, from the noxious air produced by wine that had putrified in the hold of the ship, one of whom died soon after her arrival in Philadelphia.

In the month of June, 1793, the yellow fever was generated by the noxious air of some rotten bags of pepper on board a French Indiaman, which was carried into the port of Bridgetown, by the British letter of marque *Pilgrim*. All the white men and most of the negroes employed in removing this pepper, perished with the yellow fever, and the foul atmosphere affected the town, where it proved fatal to many of the inhabitants.

On board the *Bushbridge* Indiaman a yellow fever was produced in the month of May, 1792, on her passage from England to Madras, which affected above two hundred of the crew. It was supposed to be derived from infection, but many circumstances concur to make it probable that it was derived from noxious air. The absence of smell in the air does not militate against this opinion, for there are many proofs of the most malignant fevers being brought on by airs which produced no impression on the sense of smelling. This is more frequently the case when the impure air has passed a considerable distance from its source and becomes diluted with the purer air of the atmosphere.

Several cases are related by Dr. Lind, in his treatise upon fever and infection of the yellow fever, originating at sea under circumstances which forbade the suspicion of infection, and which can only be ascribed to the impure air generated from putrid vegetables.

So well known, and so generally admitted is this source of yellow fever in warm climates, that Dr. Shannon, a late writer upon the means of preventing the diseases of warm climates, in enumerating its various causes, expressly mentions "the putrid effluvia of a ship's hold."

We wish due attention to be paid to these facts, not only because they lead to the certain means of preventing one of the sources of this fever, but because they explain the reasons why sailors are so often its first victims, and why from this circumstance the origin of the disease has been so hastily, but erroneously ascribed solely to impoisonation.

The fever which prevailed along the shore of the Delaware, in Kensington, and which proved fatal to Mr. Joseph Bowers and two of his family, we believe originated from the noxious air emitted from the hold of the ship *Huldah*; capt. Wm. Warner. This air was generated by the putrefaction of coffee which had remained there during her voyage from Philadelphia to Ham-burgh, and back again.

* In the course of our enquiries we were led to suspect one source of our late fever to be of foreign origin. The sails of the armed ship *Hinde*, on board of which several persons had died of the yellow fever, on her passage from Port-au-Prince, and which arrived on the 4th of August, were sent to the said store of Mr. Moyse. Four persons belonging to the lost were soon afterwards affected with symptoms of a bilious yellow fever. We shall not decide positively upon the origin of the fever in these cases; but the following facts render it probable that it was not derived from the persons who had died of it on board the suspected vessel. 1st, The sails emitted an offensive smell; 2d, three of the cases of the persons affected in the sail lost were of a mild grade of the fever; 3d, the fever was not propagated by contagion from any one of them; 4th, the sail lost was within the influence of the noxious air which was emitted from the hold of the *snow Navigation*, being not more than fifty yards, and was in the direction of the wind which blew at that time over her. The extent of this air has not been accurately ascertained, but many analogies give us reason to believe that it may be conveyed by the wind, in its deleterious state, from half a mile to a mile.

In support of the opinion we have delivered of the origin of our late fever, we must add further, that in that part of the city which lies between Walnut and Vine-streets, and which appeared to be free from the effects of exhalation and the noxious air of the ships, there were but few cases of the fever which appeared

* Relatively to the persons affected after receiving the sails of the armed ship *Hinde*, there is not the smallest probability that they were infected by the sails acting as fomites. The explanation given by those gentlemen is perfectly satisfactory. And had not the *snow Navigation* been in the vicinity, we should not have been at a loss to account for their indisposition without admitting the idea of contagion. The sails emitting an offensive smell is an irrefragable proof that they were damp; and what must be the state of the water and deleterious gas which were enveloped in their folds? this putrid state of water is the very postulate to render it destructive.

It is impossible that Philadelphia amidst the numerous sources of vegetable exhalations could have one street or lane free of this miasma. And the sparse cases which happened between Walnut and Pine-streets were produced by a lesser quantity of this vegetable effluvia.

There is not in this nor any other writings of the physicians of Philadelphia a single case accompanied by even the probability of contagion. And there is no axiom more evident than that the bilious or yellow fever is not contagious.

to spread by contagion, even under the most favourable circumstances for that purpose.

Having pointed out the nature and origin of our late fever, we hope we shall be excused in mentioning the means of preventing it in future.—These are,

* First. A continuance of the present laws for preventing the importation of the disease from the West-Indies, and other parts of the world where it usually prevails.

Secondly. Removing all those matters from our streets, gutters, cellars, gardens, yards, stores, vaults, ponds, &c. which by putrefaction in warm weather afford the most frequent remote cause of the disease, in all countries. For this purpose we recommend the appointment of a certain number of physicians whose business it shall be to inspect all such places in the city, the northern liberties and Southwark, as contain any matters capable by putrefaction of producing the disease and to have them removed.

Thirdly. We earnestly recommend the frequent washing of all impure parts of the city in warm and dry weather, by means of the pumps, until the water of the Scuykill can be made to wash all the streets of the city; a measure which we conceive promises to our citizens the most durable exemption from bilious fevers of all kinds, of domestic origin.

Fourthly. To guard against the frequent source of yellow fever from the noxious air of the holds of ships, we recommend the unlading all ships with cargoes liable to putrefaction at a distance from the city, during the months of June, July, August, September and October. To prevent the generation of noxious air in the ships, we conceive every vessel should be obliged by law to carry and use a ventilator, and we recommend in a particular manner the one lately contrived by Mr. Benjamin Wynkoop.—We believe this invention to be one of the most important and useful that has been made in modern times, and that it is calculated to prevent not only the decay of ships and cargoes, but a very frequent source of pestilential diseases of all kinds in commercial cities.

* This disease can only be imported from the West-Indies or any place by vessels arriving from those places with putrid water or vegetables in their holds, &c. As this fever uniformly arises from the unfound vegetables or putrid water, and never from clothes as the vehicles of contagion, or bodies which may be diseased on-board such vessels; our chief attention, instead of being confined to the persons, should be directed to the state of the cargoes; which by the bye ought always, during the sickly months, to be examined before they are suffered to come so near a city as that the noxious air can injure the inhabitants.

I have not annexed this appendix solely for the purpose of adjusting the etiquette of science, but in order to preserve the excellent preventive observations contained in the reply to the request of the governor of Pennsylvania.

In thus deciding upon the nature and origin of our late fever, we expect to administer consolation to our fellow citizens upon the cause of our late calamity, for in pointing out its origin to the senses, we are enabled immediately and certainly to prevent it. But while the only source of it is believed to be from abroad and while its entrance into our city is believed to be in ways so numerous and insidious as to elude the utmost possible vigilance of health officers, we are led in despair to consider the disease as removed beyond the prevention of human power or wisdom. It has been by adopting measures similar to those we have delivered for preventing pestilential diseases, that most of the cities of Europe, which are situated in warm latitudes, have become healthy in warm seasons and amidst the closest commercial intercourse with nations and islands constantly afflicted with those diseases. The extraordinary cleanliness of the Hollanders was originally imposed upon them by the frequency of pestilential fevers in their cities. This habit of cleanliness has continued to characterize those people after the causes which produced it have probably ceased to be known.

In thus urging a regard to the domestic sources of the yellow fever, we are actuated by motives of magnitude far beyond those which determine ordinary questions in science. Though we feel the strongest conviction that the value of property, the increase of commerce and the general prosperity of our city, will be eminently forwarded by the adoption of the foregoing propositions, yet these are but little objects in our view when compared with the prevention of the immense mass of distress which never fails to accompany a mortal epidemic. We consider ourselves moreover as deciding upon a question which is to affect the lives and happiness not only of the present inhabitants of Philadelphia, but of millions yet unborn in every part of the globe.

We are with the greatest respect,

Sir,

Your very humble servants,

Benjamin Rush,
Charles Caldwell,
William Dewees,
John Redman Coxe,
Phillip Syng Physick,
James Reynolds,
Francis Bowes Sayre,
John C. Otto,
William Boys,
Samuel Cooper,
James Stuart,
Felix Pascalis,
Joseph Strong.

His Excellency }
THOMAS MIFFLIN. }

ERRATA.



IN page 7, line 35, for *locticals* read *laeticals*.

Page 15, line 11, for *tread* read *trod*. Line 30, for *the the*
the Town, read *the Town*.

Page 16, line 11, for *secendly* read *secondly*.

Page 17, line 26, for *antogonist* read *antagonist*—line 33, for
circumstiences read *circumstances*.

Page 22, line 15, for *whence* read *hence*.

Page 26, line 23, for *teneble* read *tenable*.

Page 36, line 13, for *strictun* read *strictum*.

Page 38, line 10, for *qud* read *quæ*.

Page 42, line 17, for *bill* read *bile*—line 22, for *is reason* read
is the reason, and for *practicioners* read *practitioners*.

Page 43, line 14, for *rouvient* read *rouvrent*.

Page 45, line 34, for *ariæ* read *areæ*.

Page 46, line 6, for *eye-bales* read *eye-balls*.

Page 51, line 4, for *unweldinefs* read *unweildinefs*—in line 5,
for *acid* read *acrid*.

Page 52, line 20, for *day* read *days*.

Page 64, line 47, for *ettiquette* read *etiquette*.

Aliis, si qua sint, ignoscat benevolus lector.



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